Synchronization of Army Transformation

What You Need to Know About the Network

LTG Steven W. Boutelle
Chief Information Officer / G-6

CHIEF INFORMATION OFFICE (CIO)
UNITED STATES ARMY
G-6
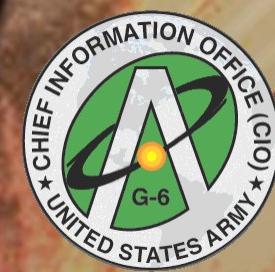
"Providing and **integrating** *Command and Control (***C2***),* **ISR***,* **and communications** *connectivity within the FCS UA and UE, with the rest of the Objective Force, and with Joint Forces, stands out as the* **most critical challenge** *to the* **viability** *of the* **FCS** *concept."*

Welch Panel (I) Report

Review of the Army's Objective Force and Future Combat System Components

Independent Assessment Panel

Institute for Defense Analyses

2

DoD AE

Army Architecture Integration Cell (AAIC)
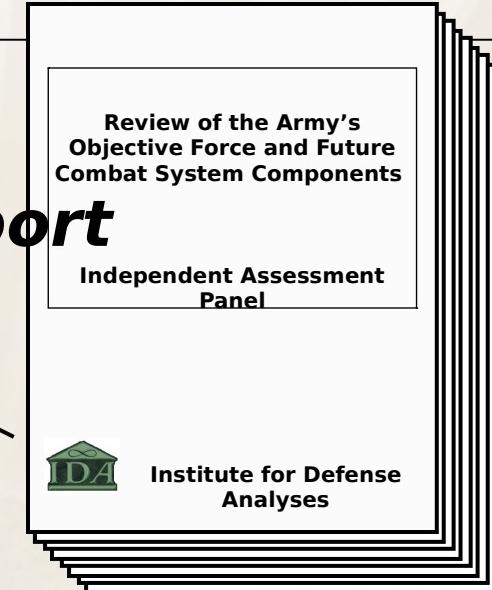
ASD(NII) – DoD CIO
- **IPv6 Compliant**
- **Data/XML**

GES

Networthiness Certification
- **CTSF**

Joint Interoperability Test Command

OF TF

Info Assurance
- **OMB 300**
- **DoDI 8500**

JTA   JTA-A

CIO/G-6

Army CIO

AAE
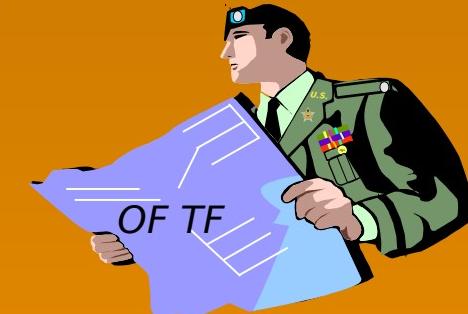
Managing the Integration of the AKE into Joint Integrating Architecture

3
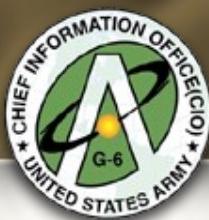
Circuits

- **End-to-End Management**
- **Manual Routing**
- **High Risk of Critical Path**

Node Failure; Circuit Fails

4
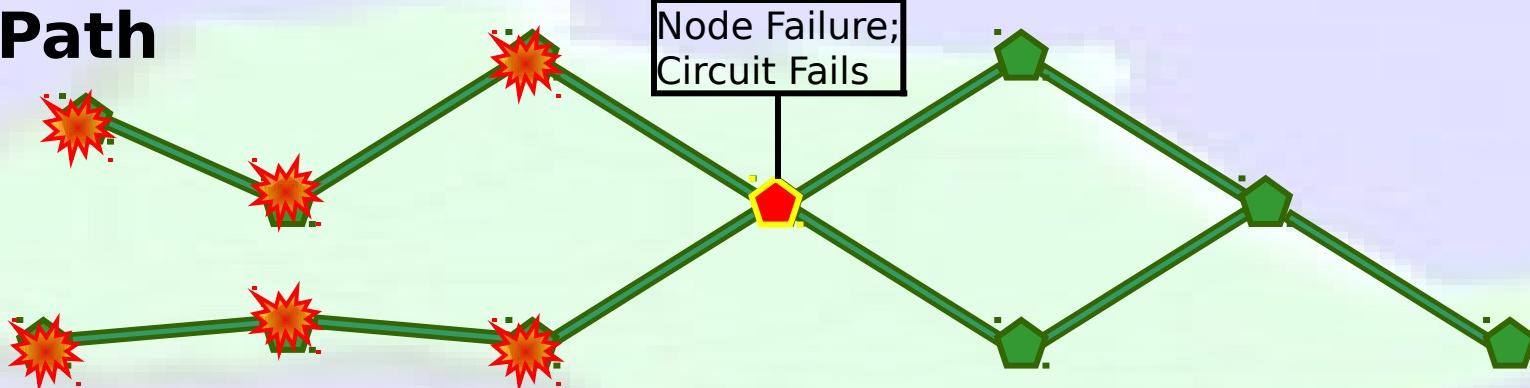
- End-to-End Management
- Manual Routing
- High Risk of Critical Path

- **Network Management**
- **Built-in Redundancy**
- **Uses Joint Capabilities**

Node Failure;
Network Bypasses
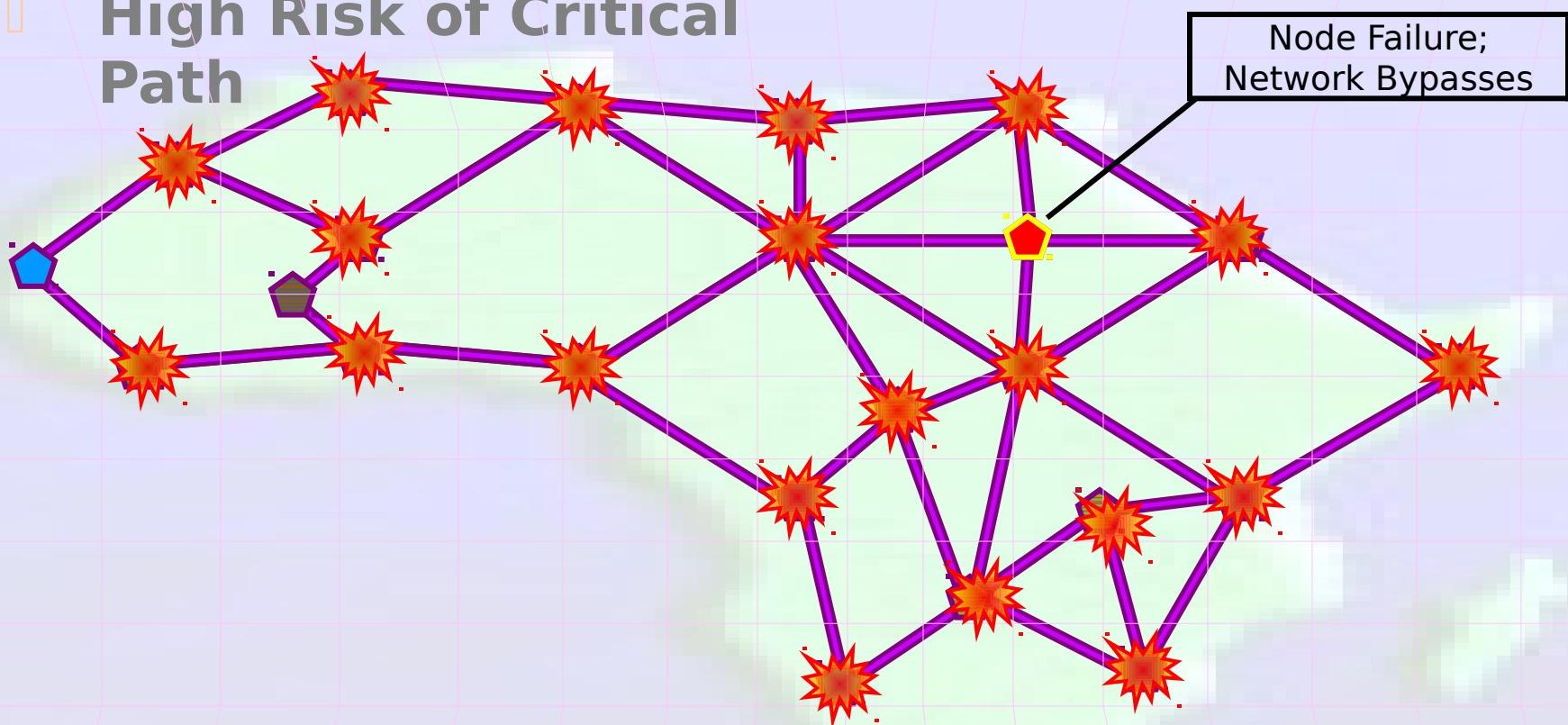
The Global Environment

- Multiple Current Force Networks including C4, ISR, Logistics & Personnel
- Teleport and Strategic Tactical Entrance Points (STEP)

IOT&E is too late. . .

Today

- Old Copper
- Analog, Aging Switches
- Limited Growth Ability

We must fix the Last Mile to the Installation

Home Station Operation Center

2003-2009

- Fiber or New Copper
- Latest Digital Switches
- Latest network equipment for high-speed data
- Upgrade Gateways to DISN/GIG-BE
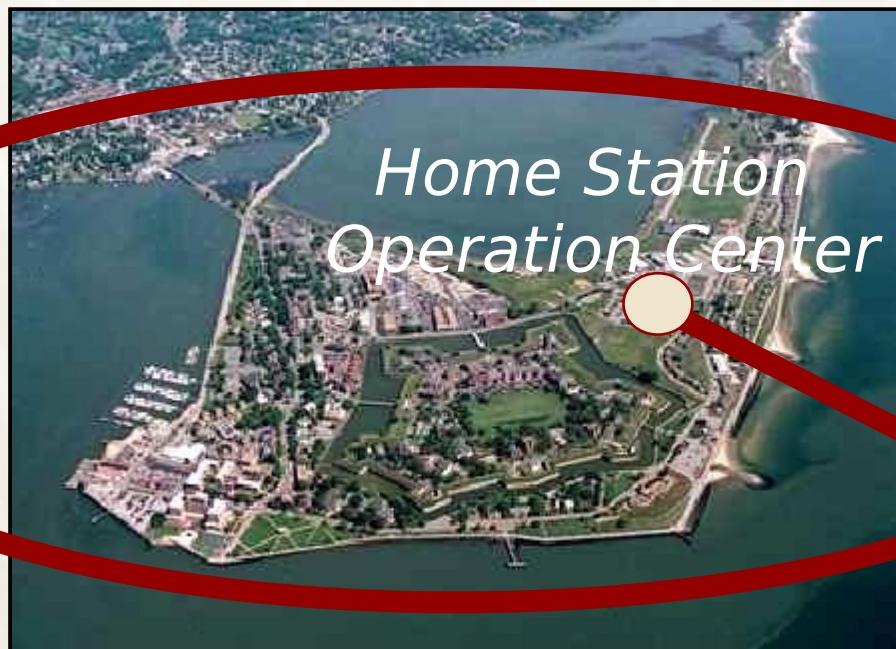
I3MP

- **Installation upgrades of IT infrastructure**
- **High bandwidth access from installation to DISN**

Funding: $3.2B (Army)

Locations:
All Army installations including ARNG and Army Reserve

Enablers for Future Combat System and Objective Force

# Global Information Grid (GIG) Bandwidth Expansion Program

Today

- Multiple Carriers
- Single Points of failure
- Constrained Bandwidth (i.e. 45 Mbps)

Ultra-High Bandwidth to Key Access Points

2003-2004

- Physically Diverse Access
- Redundant Switching Equipment
- IP based
- High Bandwidth ~2.5 to 10 Gbps

BASE

BAS

BAS

BASE

BASE

CORE FIBER

BAS E

BAS E

Access Bandwidth

Non-Core Fiber / Bandwidth

BASE

BASE

BASE BASE

BASE

BASE

Funding: $877M (DISA)

GIG-BE

- **Extremely High Bandwidth DISN Backbone**
- **Fiber Ring**

Locations:
CONUS based with Global access

Enablers for Future Combat System and Objective Force

Teleport
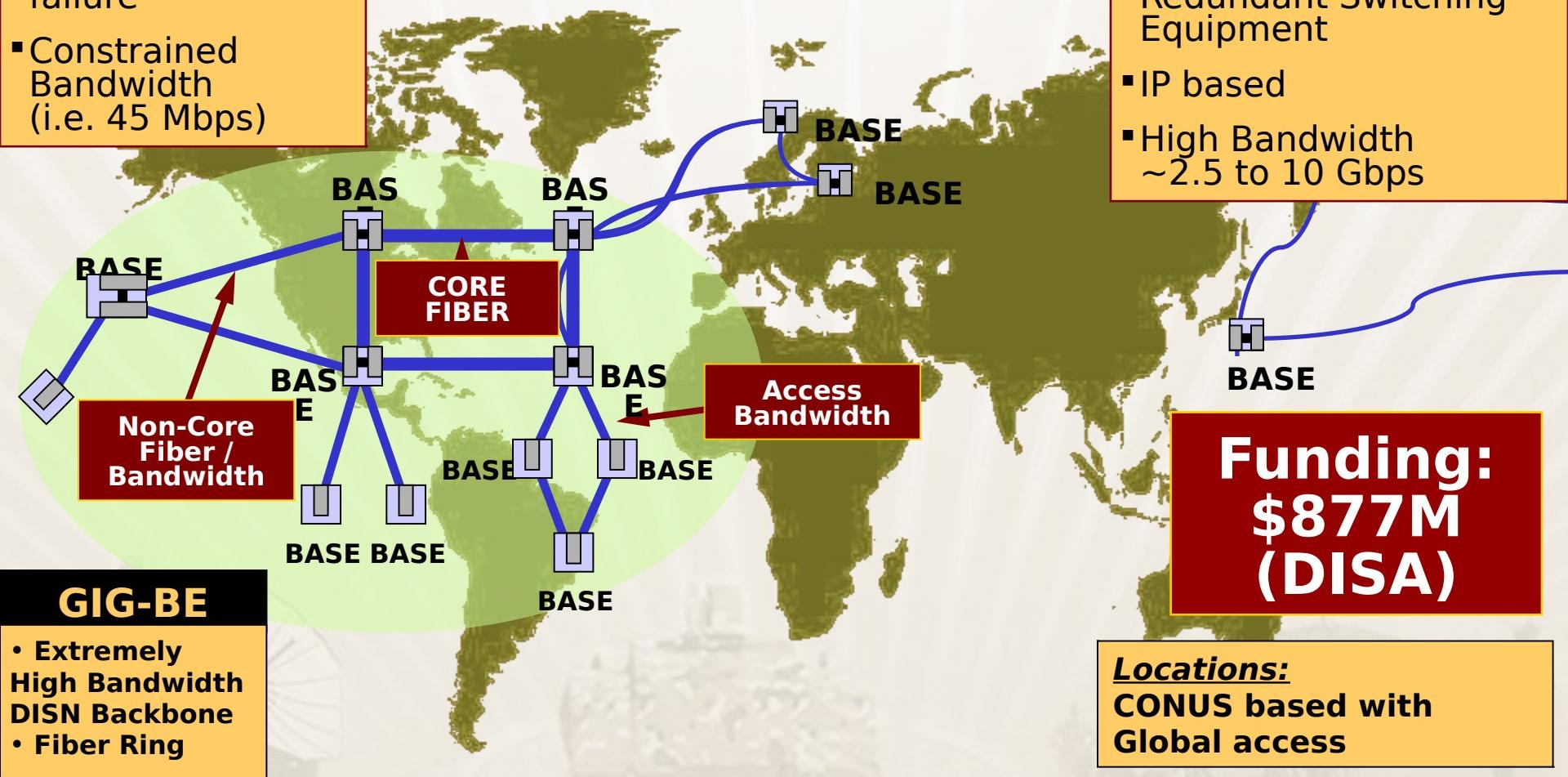
Global Access To the Warfighter

STEP

- Military
- Constrained Bandwidth (45 Mbps)

Teleport

- Military and Commercial Access
- Increased Bandwidth (~102 Mbps)
- Crossbanding Mil to Comm (via teleport)

Landstuhl

Ramstein

Lago di Patria

AKO

Camp Roberts

Norfolk

Wahiawa

FT Buckner

UE

UA

Teleport

- Next Generation Tactical Entry Point for DISN Services
- Access to DISN Services including
- NIPRnet, SIPRnet, DSN

Funding: $557M

Locations:

Ft Meade	Ft Belvoir
Ft Bragg	
Croughton	
Bahrain AFB	McDill
Sigonella	Ft Detrick

**Enablers for Future Combat System and Obje**

Global Broadcast Service (GBS)

Continuous *High-Speed Data* & *Video to the Warfighter – GLOBALLY!*

- Worldwide Satellite Capability
- All (3) Primary Injection Point (PIP) Operational

- 456 Light Terminals
- 27x Rec Systems per Division

GBS

- **Downloads Bulk Information to requiring units such as:**
- ✓ **ATO**
- ✓ **Ops/Intel Updates**
- ✓ **CROP data**
- ✓ **Imagery**
- ✓ **Mapping**
- ✓ **Video**
- ✓ **News Services**
- ✓ **Weather**
- ✓ **Log data**

PIP

PIP

PIP

UE

UA

Funding: $153.5M (Army)

Deployed in SWA in 2002

Army Mobile TIP Locations:
NETCOM (11th Bde) (Jul 02)

Enablers for Future Combat System and Objective Force

11
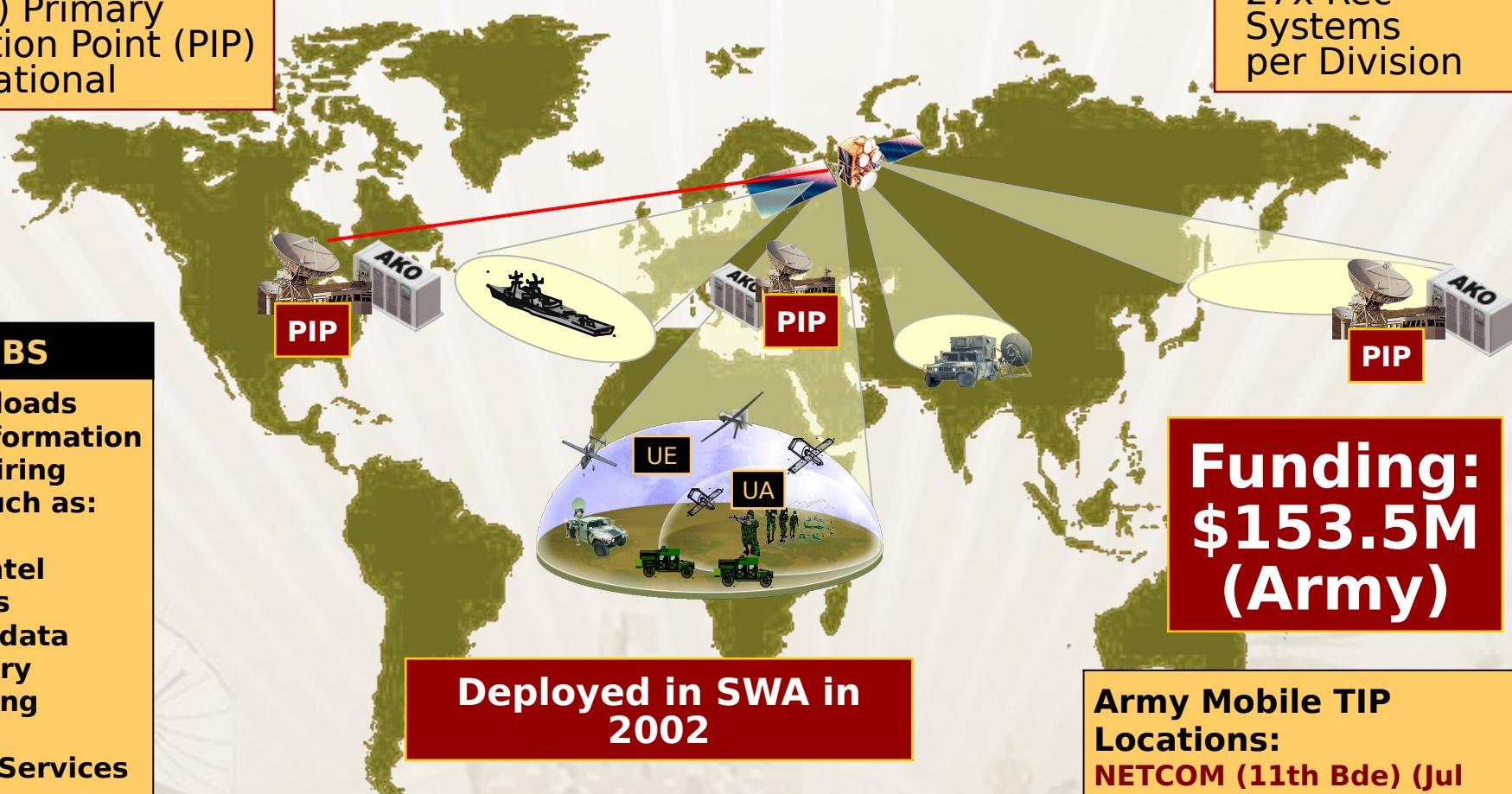
Transformational Communications

- Constrained Bandwidth
- Stove-piped SATCOM
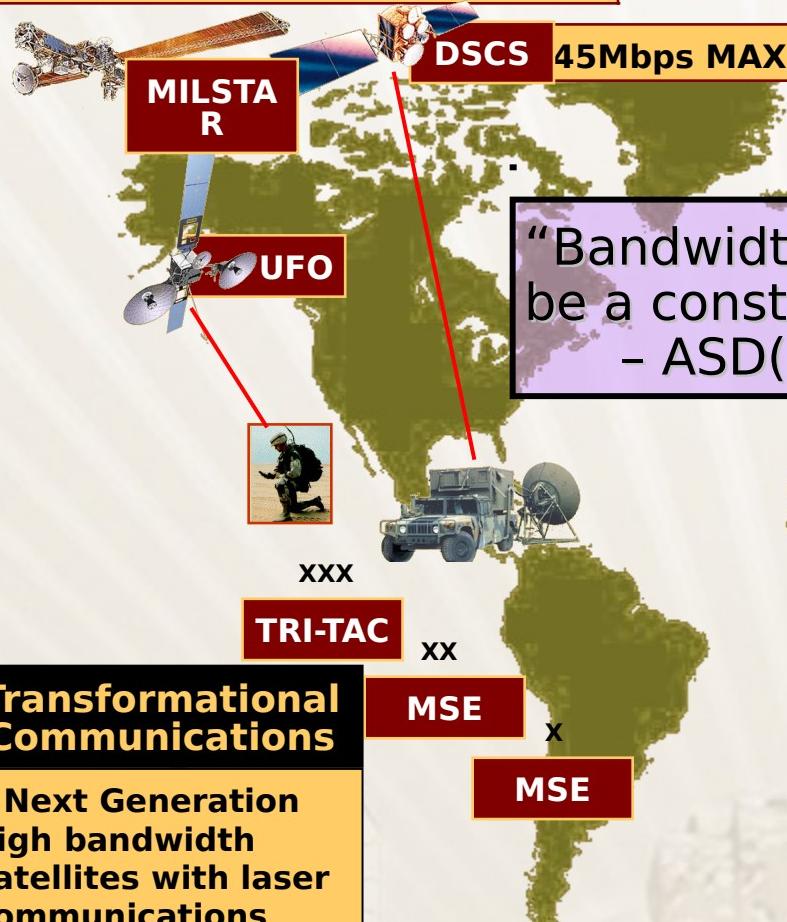
- "Big Pipes"
- Networked satellites
- On the Move Comms

MILSTAR

DSCS   **45Mbps MAX**

UFO

Laser Comm Backbone / Relay (~10 Gbps)

T-SAT Laser / AEHF

> "Bandwidth should not be a constraint."
> – ASD(NII)

NSSS

MUOS

xxx

TRI-TAC   xx

WIN-T

UE

Transformational Communications

MSE

x

UA

Funding: $231M

MSE

- **Next Generation high bandwidth satellites with laser communications relays within new constellation**

Locations: **Global**

Enablers for Future Combat System and Objective Force

The National Science Center was created by Public Law 99-145 in 1985 as amended by Section 280 of the 1996 Defense Authorization Act. As a result the National Science Center, a non-profit corporation, and the Secretary of the Army formed a partnership to develop a *National Science Center* to:

- Promote *Science and Mathematics Education* for all ages nationwide.

- Motivate young Americans to seek careers in technology and engineering.

- Produce products and services providing hands-on training in the sciences.

- Operate and maintain a headquarters functioning as a hub for national education programs.

"One size does not fit all when it comes to educating our children."

U.S. Secretary of Education Rod Paige

- **Secretary of the Army entered into Memorandum of Understanding with the National Science Center for Communications and Electronics Foundation Incorporated ...** *A non profit corporation*

- **Secretary of the Army signed a New Education Partnership Agreement with NSC, Inc. on 22 May 2002**

- **Army commitment -** *$2M covers salaries of DA civilians* *ome operating costs*

NATIONAL SCIENCE CENTER
SUPPORT to the NATION

National Senior High Summer Camps
Also: Panama, Puerto Rico, Guam
US Virgin Islands, American Samoa

National Senior High School In-School Programs
Also: St. Thomas, Virgin Islands

LEGEND

- ● Mobile Discovery Center Vans
- ★ JROTC High School Summer Camps
- ⬠ JROTC High School In-School Program
- △ Math & Science Camps
- ◎ Starlab Programs
- ♥ Distance Learning Programs
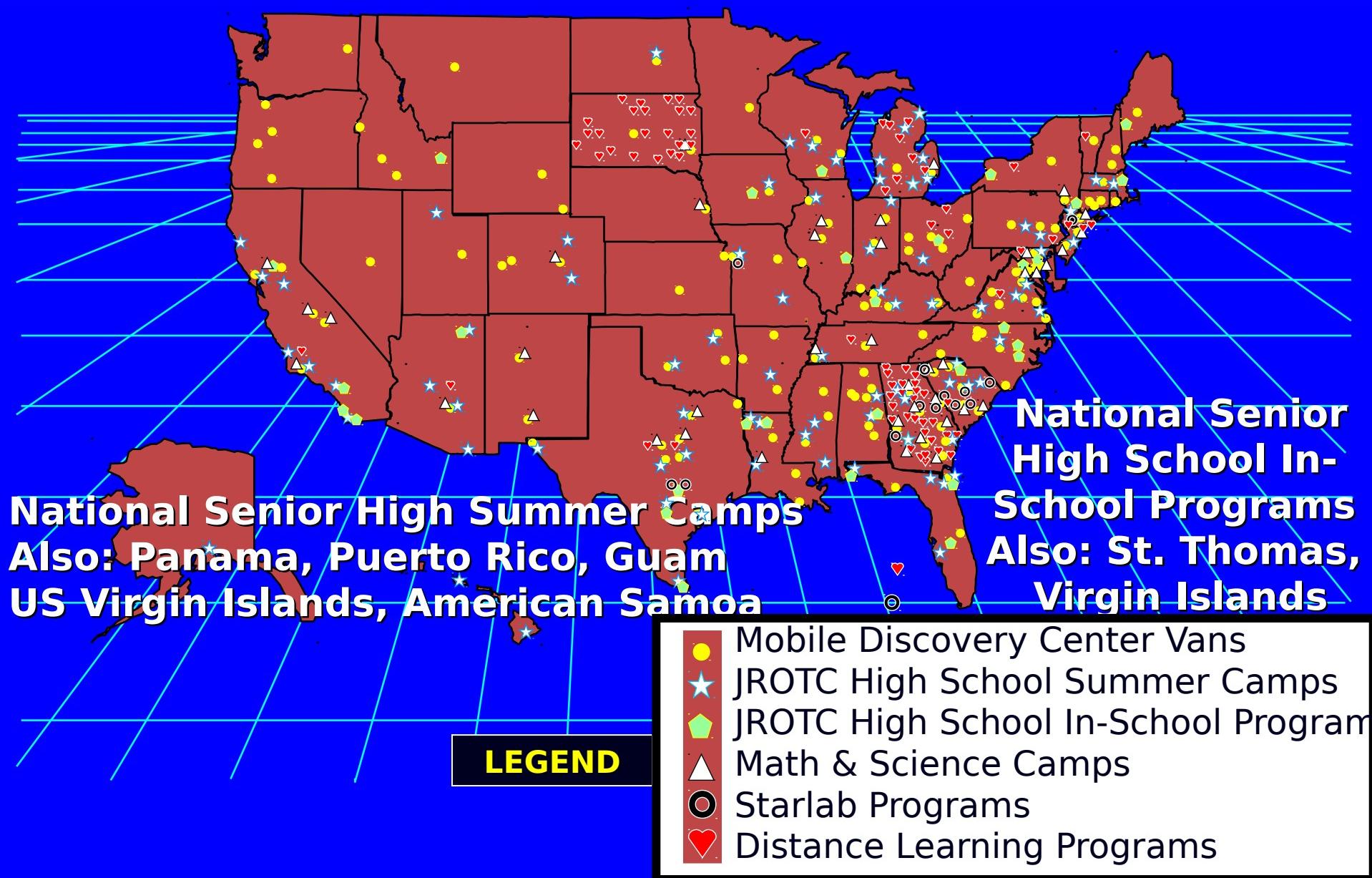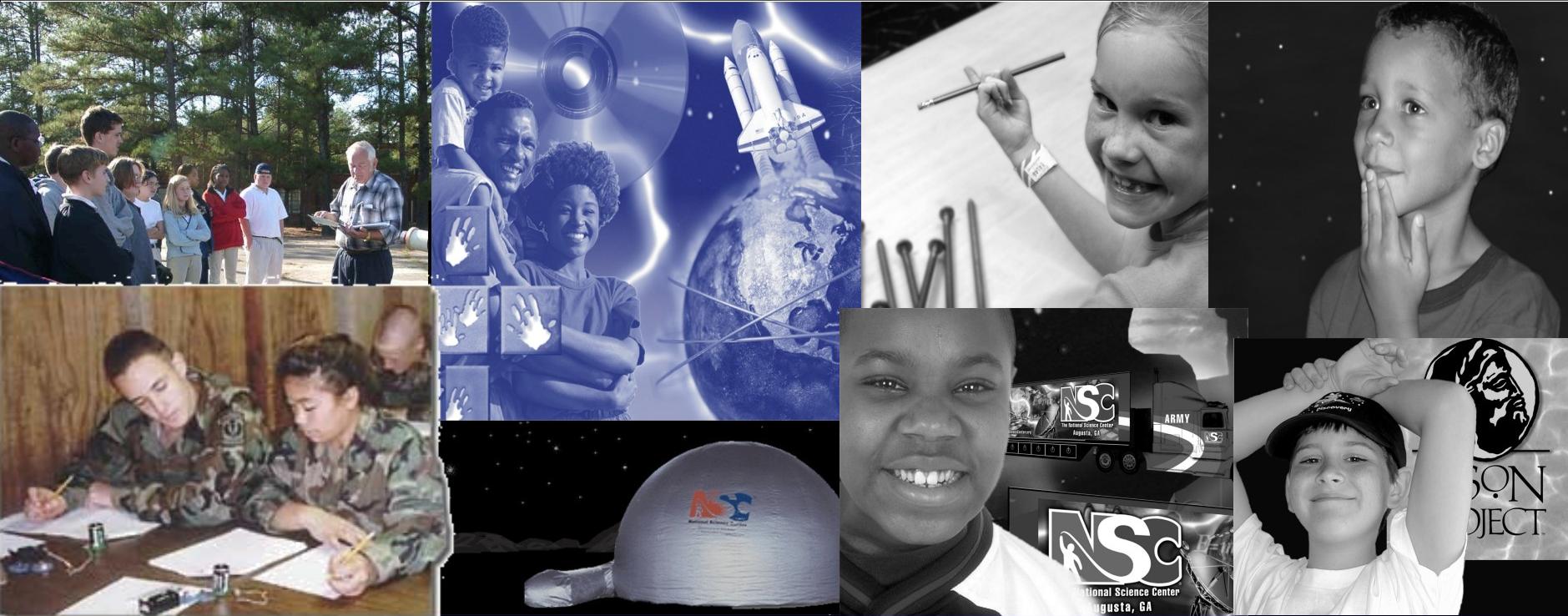
The NSC Needs Your Help!

- **Program and Funding**

The National Science Center

**One Seventh Street on the Riverwalk
Augusta, Georgia 30901
Ph: 800.325.5445 / 706.821.0200
Fax: 706.821.0269**

www.NationalScienceCenter.org

LTG Steven W. Boutelle

Army Chief Information Officer / G-6

AAA Single DOIM Audit

Objective is more efficient use of Army assets

① AAA:
- Contacts units
- Provides C4IM services list

③ AAA:
- Issues preliminary Report

⑥ Final Report – Distribution of resources gained

20-60 days	14 days	30-60 days	30-?? days (As Needed)	30-?? days (As Needed)

② AAA visits unit:
- Reviews data (unit provided)
- Conducts discussions

AAA & Unit:
④
- Clarify,
- Refine, &
- Negotiate final report

⑤ CIO/G-6:
- Reviews Official Army Position

Common Sense review - it may talk like a duck & walk like a duck, but be a swan. *No cookie-cutter answers!*

NSC Major Programs

- Mobile Discovery Center Vans – Two 18-wheelers take the science center experience to urban and rural schools nationwide

- Junior ROTC Math & Science Program – Provides 8 hours of hands-on math and science activities for summer camp and in-school programs

- Web Site Development – Delivers dynamic educational resources to a nationwide audience of middle school teachers and students

- Distance Learning – Offers interactive, inquiry-based demonstration programs designed to enhance classroom activities for grades K-12

- Fort Discovery – Science center with over 250 participatory, interactive exhibits of math, science, and technology on the Riverwalk in Augusta